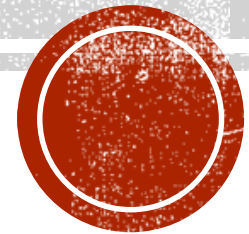


# **PALO DURO ROCKS!**

Geology as metaphor in Palo Duro Canyon



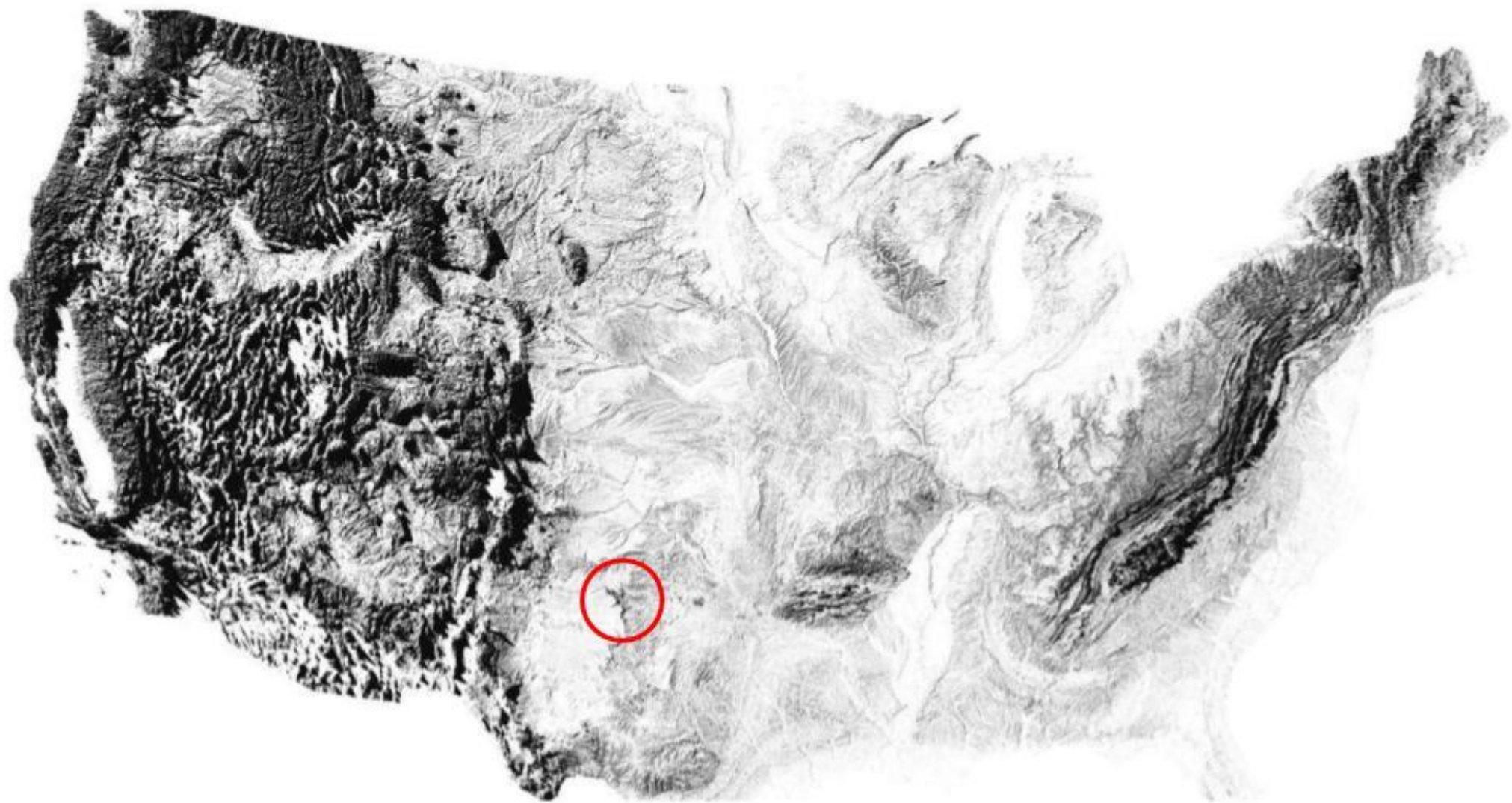


**TEXAS  
—  
PARKS &  
—  
WILDLIFE**

To manage and conserve the  
natural and cultural resources of Texas  
and to provide hunting, fishing and  
outdoor recreation opportunities  
for the use and enjoyment  
of present and future generations.



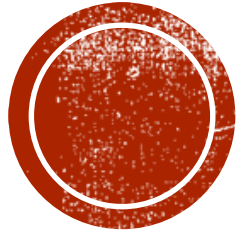




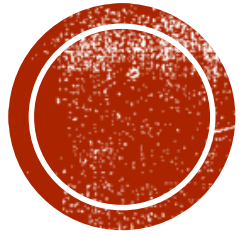














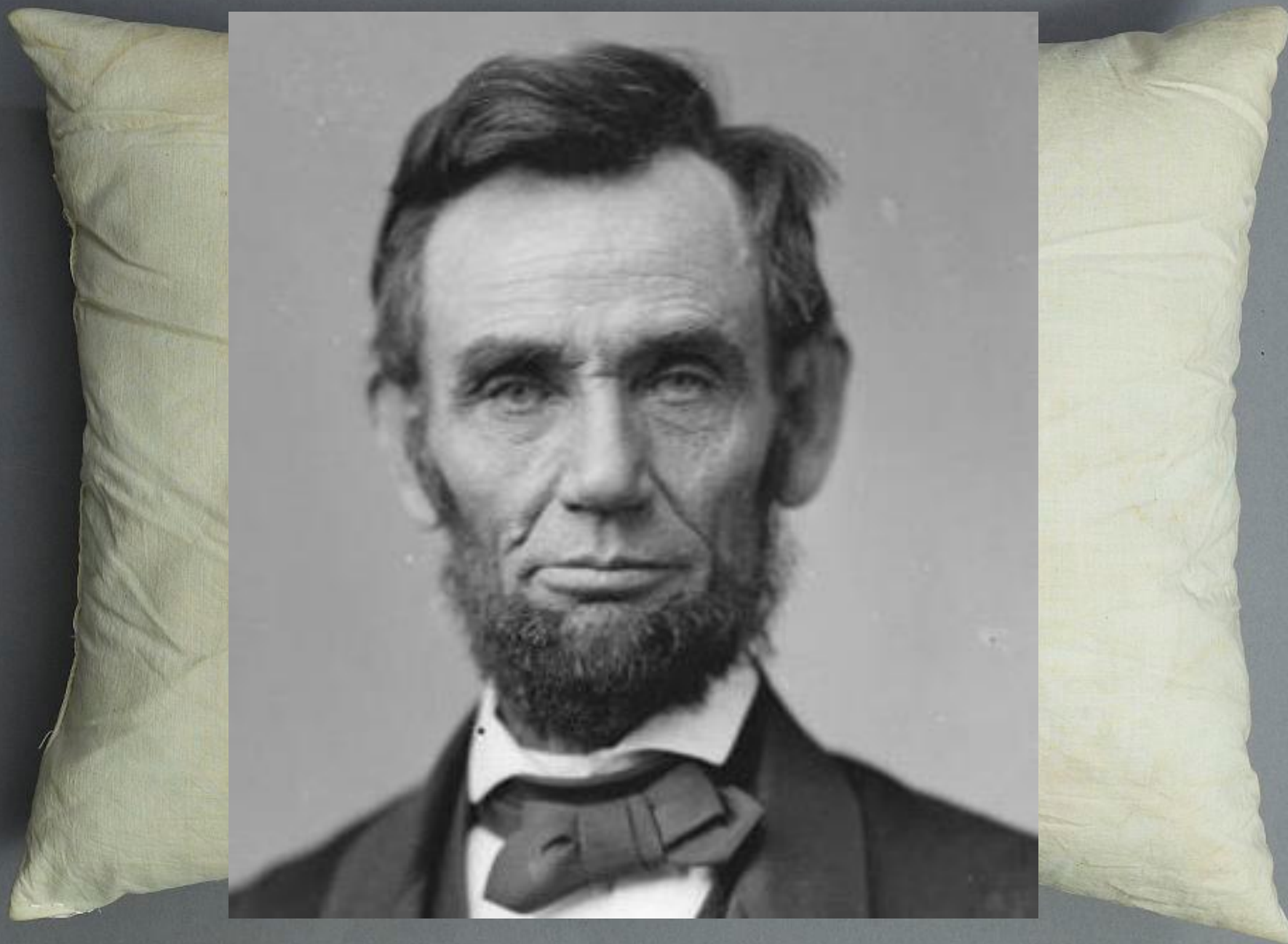


**Visitor**

**Resource**













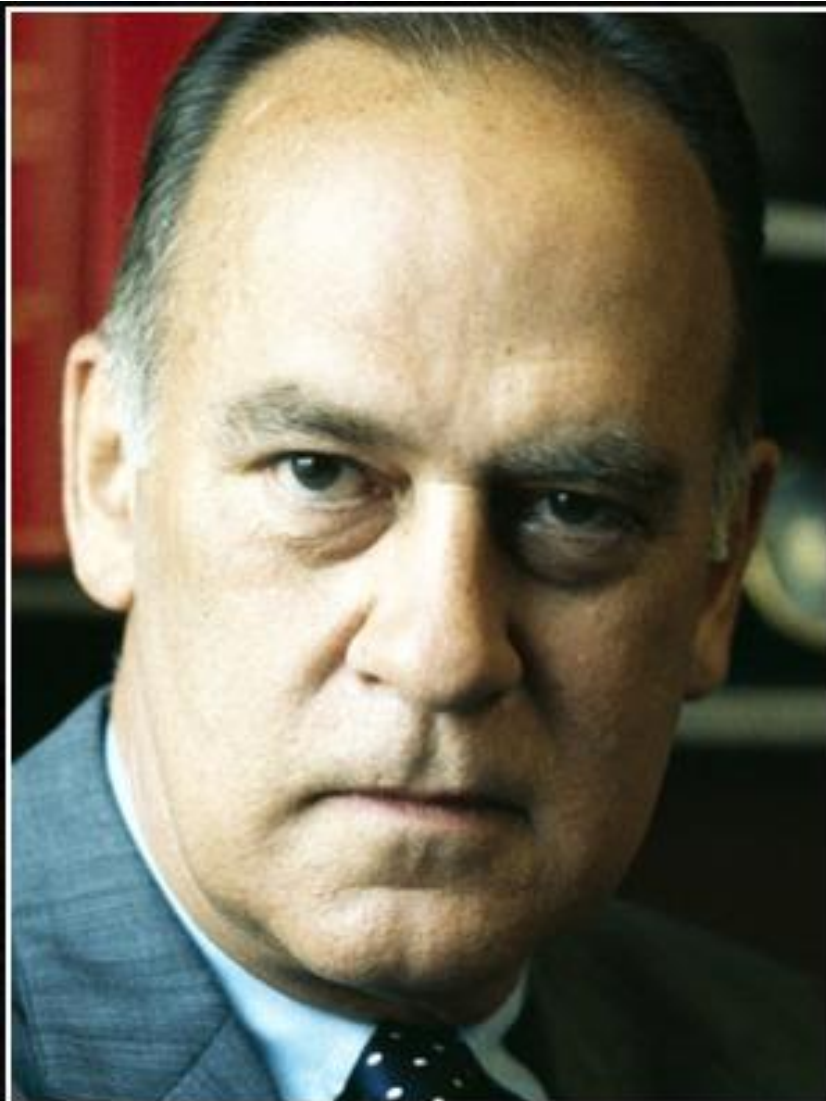




# What is a rock?







I shall not today attempt further to  
define the kinds of material but I  
know it when I see it.

— *Potter Stewart* —







Okay. So then what  
is a mineral?





# Igneous



## Rock Types

# Sedimentary

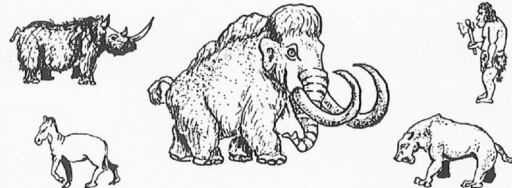
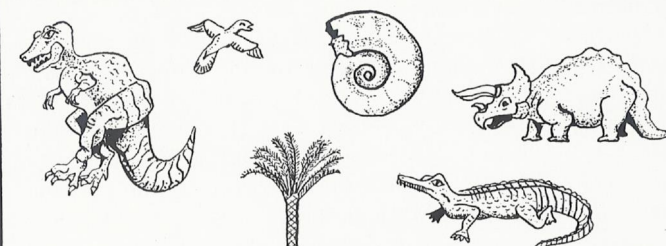




# Metamorphic





# GEOLOGIC TIME SCALE

ERA	PERIOD	EPOCH	SUCCESSION OF LIFE
CENOZOIC "RECENT LIFE"	QUATERNARY 0-1 MILLION YEARS	Recent Pleistocene	
	TERTIARY 62 MILLION YEARS	Pliocene Miocene Oligocene Eocene Paleocene	
MESOZOIC "MIDDLE LIFE"	CRETACEOUS 72 MILLION YEARS		
	JURASSIC 46 MILLION YEARS		
	TRIASSIC 49 MILLION YEARS		
PALEOZOIC "ANCIENT LIFE"	PERMIAN 50 MILLION YEARS		
	CARBONIFEROUS		
	PENNSYLVANIAN 30 MILLION YEARS		
	MISSISSIPPIAN 35 MILLION YEARS		
	DEVONIAN 60 MILLION YEARS		
	SILURIAN 20 MILLION YEARS		
	ORDOVICIAN 75 MILLION YEARS		
	CAMBRIAN 100 MILLION YEARS		
PRECAMBRIAN ERAS			
PROTEROZOIC ERA			
ARCHEOZOIC ERA			
APPROXIMATE AGE OF THE EARTH MORE THAN 4 BILLION 550 MILLION YEARS			





# PRECAMBRIAN ERAS

PROTEROZOIC ERA

ARCHEOZOIC ERA



APPROXIMATE AGE OF THE EARTH MORE THAN 4 BILLION 550 MILLION YEARS





# PALEOZOIC

"ANCIENT LIFE"

CARBONIFEROUS

PERMIAN  
50 MILLION YEARS

PENNSYLVANIAN  
30 MILLION YEARS

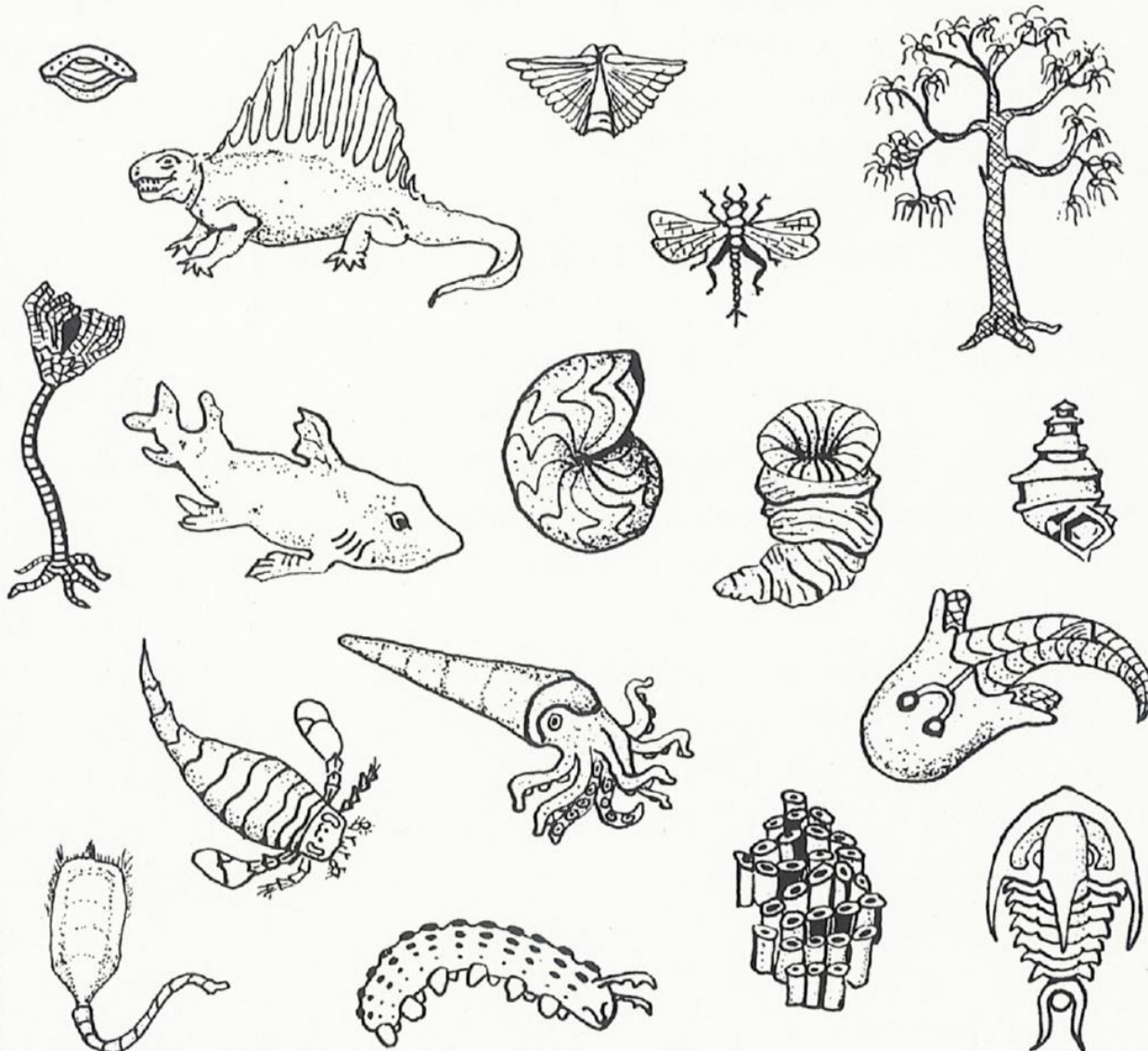
MISSISSIPPIAN  
35 MILLION YEARS

DEVONIAN  
60 MILLION YEARS

SILURIAN  
20 MILLION YEARS

ORDOVICIAN  
75 MILLION YEARS

CAMBRIAN  
100 MILLION YEARS





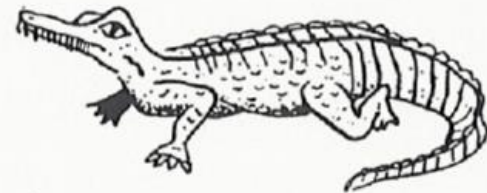
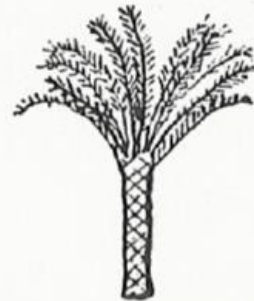
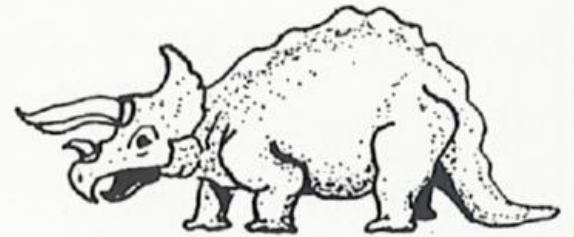
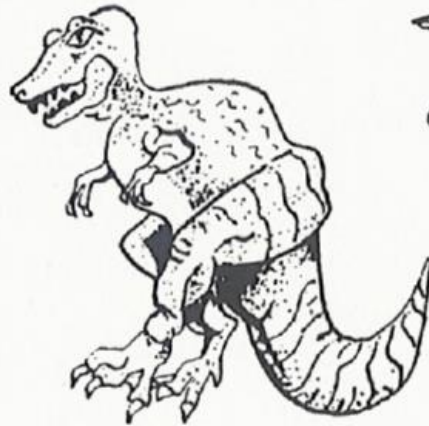
# MESOZOIC

"MIDDLE LIFE"

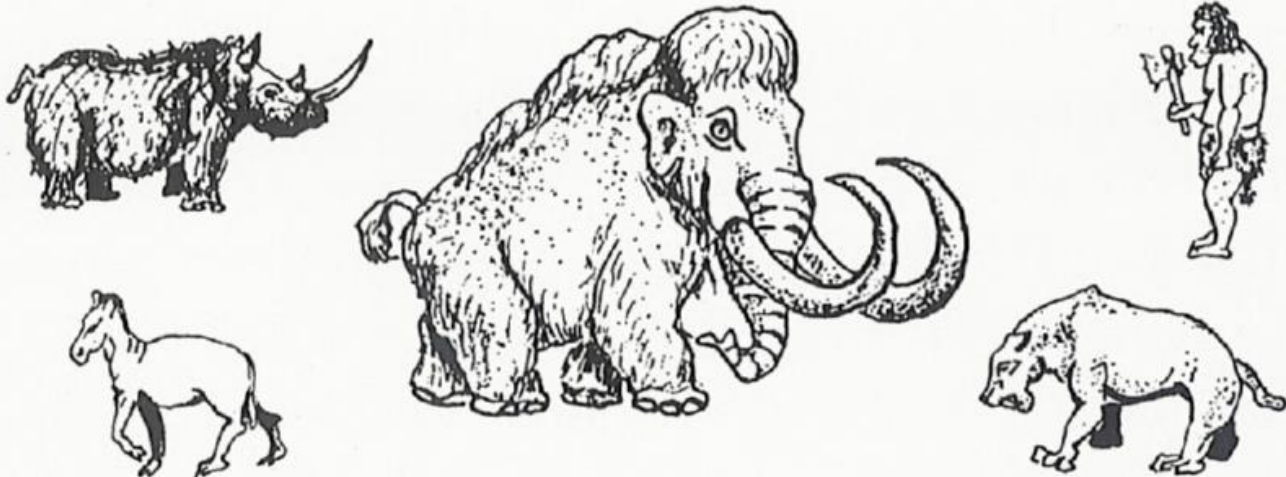
CRETACEOUS  
72 MILLION YEARS

JURASSIC  
46 MILLION YEARS

TRIASSIC  
49 MILLION YEARS





ERA	PERIOD	EPOCH	SUCCESSION OF LIFE
CENOZOIC "RECENT LIFE"	QUATERNARY 0-1 MILLION YEARS	Holocene Pleistocene	
	TERTIARY 62 MILLION YEARS	Pliocene Miocene Oligocene Eocene Paleocene	





GEOLOGIC TIME SCALE			
ERA	PERIOD	EPOCH	SUCCESSION OF LIFE
<b>CENOZOIC</b> "RECENT LIFE"	QUATERNARY 0-1 MILLION YEARS	Recent	
		Pleistocene	
	TERTIARY 62 MILLION YEARS	Pliocene	
		Miocene	
		Oligocene	
		Eocene Paleocene	
<b>MESOZOIC</b> "MIDDLE LIFE"	CRETACEOUS 72 MILLION YEARS		
	JURASSIC 46 MILLION YEARS		
	TRIASSIC 49 MILLION YEARS		
<b>PALEOZOIC</b> "ANCIENT LIFE"	PERMIAN 50 MILLION YEARS		
	CARBONIFEROUS		PENNSYLVANIAN 30 MILLION YEARS
			MISSISSIPPIAN 35 MILLION YEARS
			DEVONIAN 60 MILLION YEARS
	SILURIAN 20 MILLION YEARS		
	ORDOVICIAN 75 MILLION YEARS		
	CAMBRIAN 100 MILLION YEARS		
	<b>PRECAMBRIAN ERAS</b>		
PROTEROZOIC ERA			
ARCHEOZOIC ERA			
APPROXIMATE AGE OF THE EARTH MORE THAN 4 BILLION 550 MILLION YEARS			

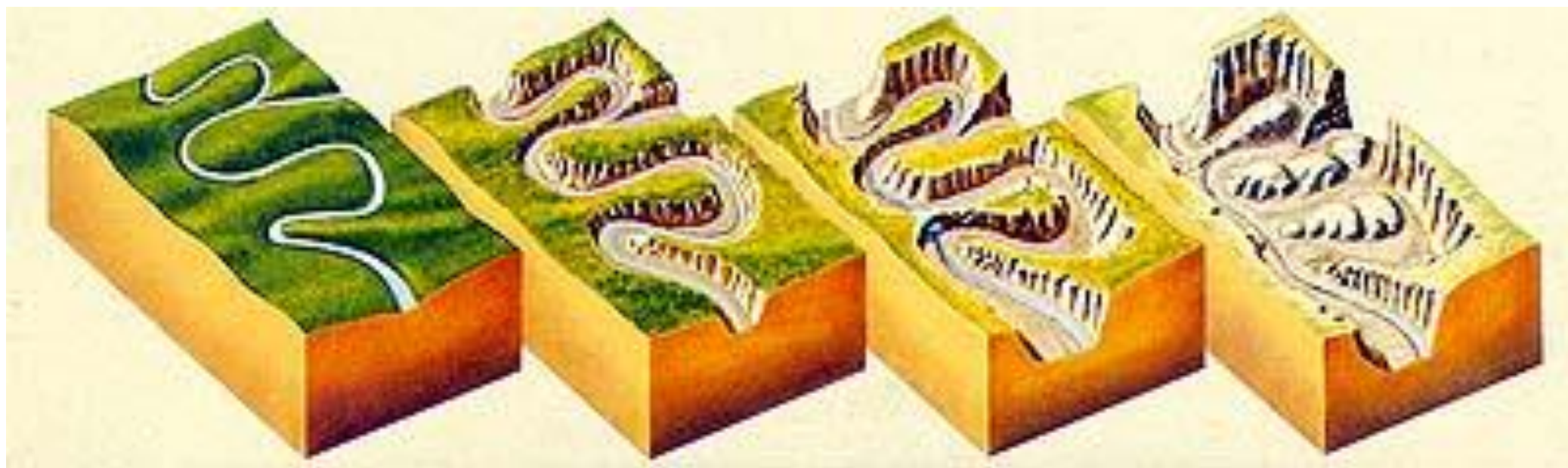






Minute  
Earth

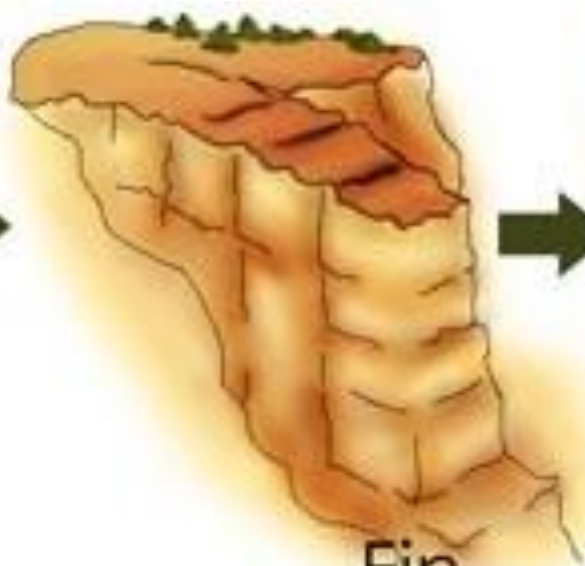








Plateau



Fin



Window



Hoodoos







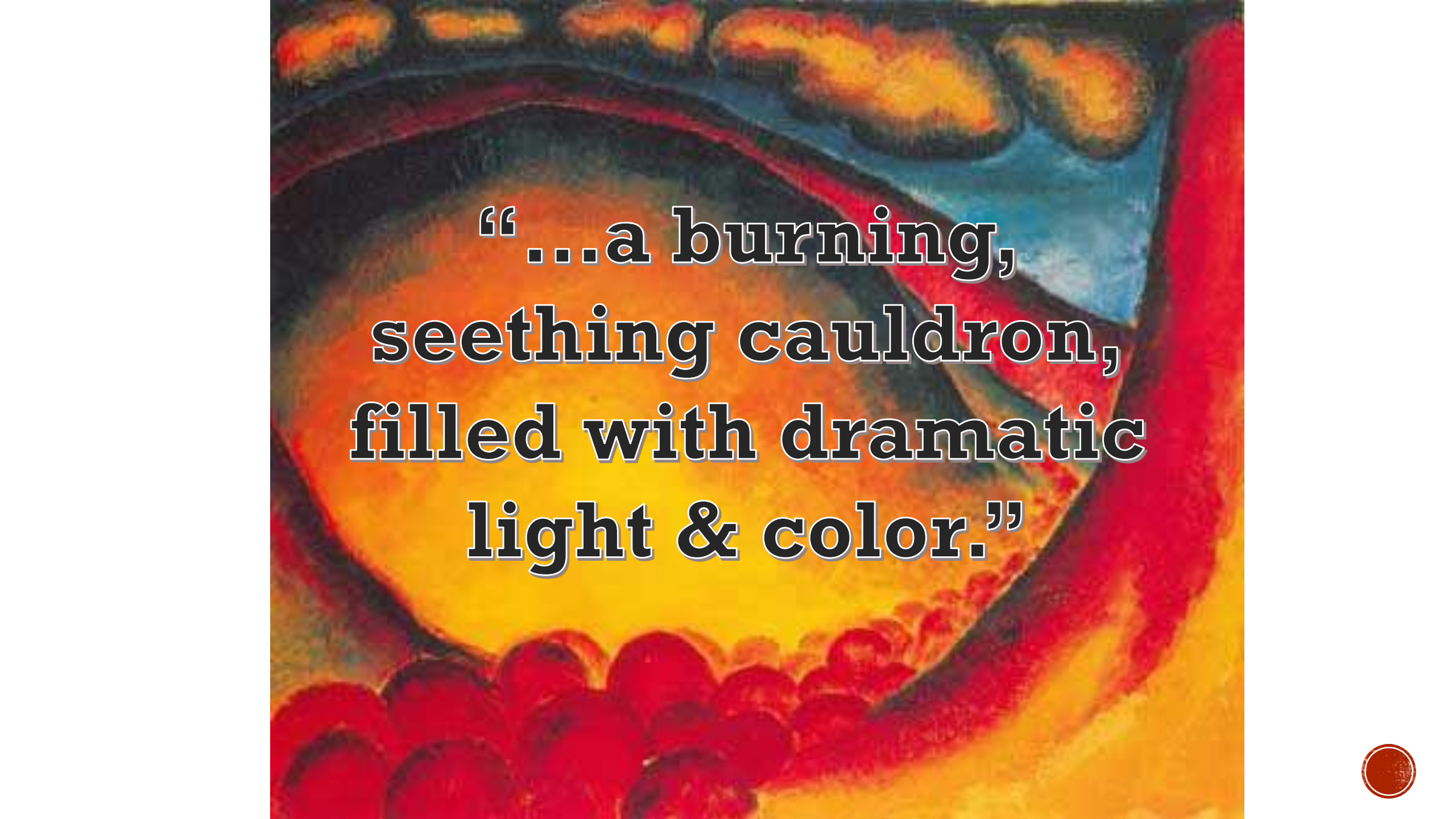











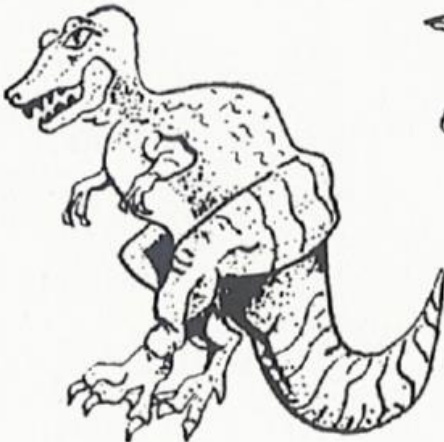


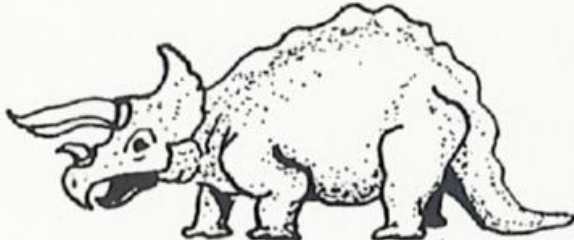

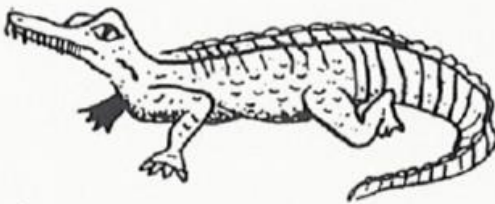




**“...a burning,  
seething cauldron,  
filled with dramatic  
light & color.”**





CEN "RE"	TERTIARY 62 MILLION YEARS		Oligocene Eocene Paleocene			
	CRETACEOUS 72 MILLION YEARS		     			
	JURASSIC 46 MILLION YEARS					
	TRIASSIC 49 MILLION YEARS					

# Unconformities







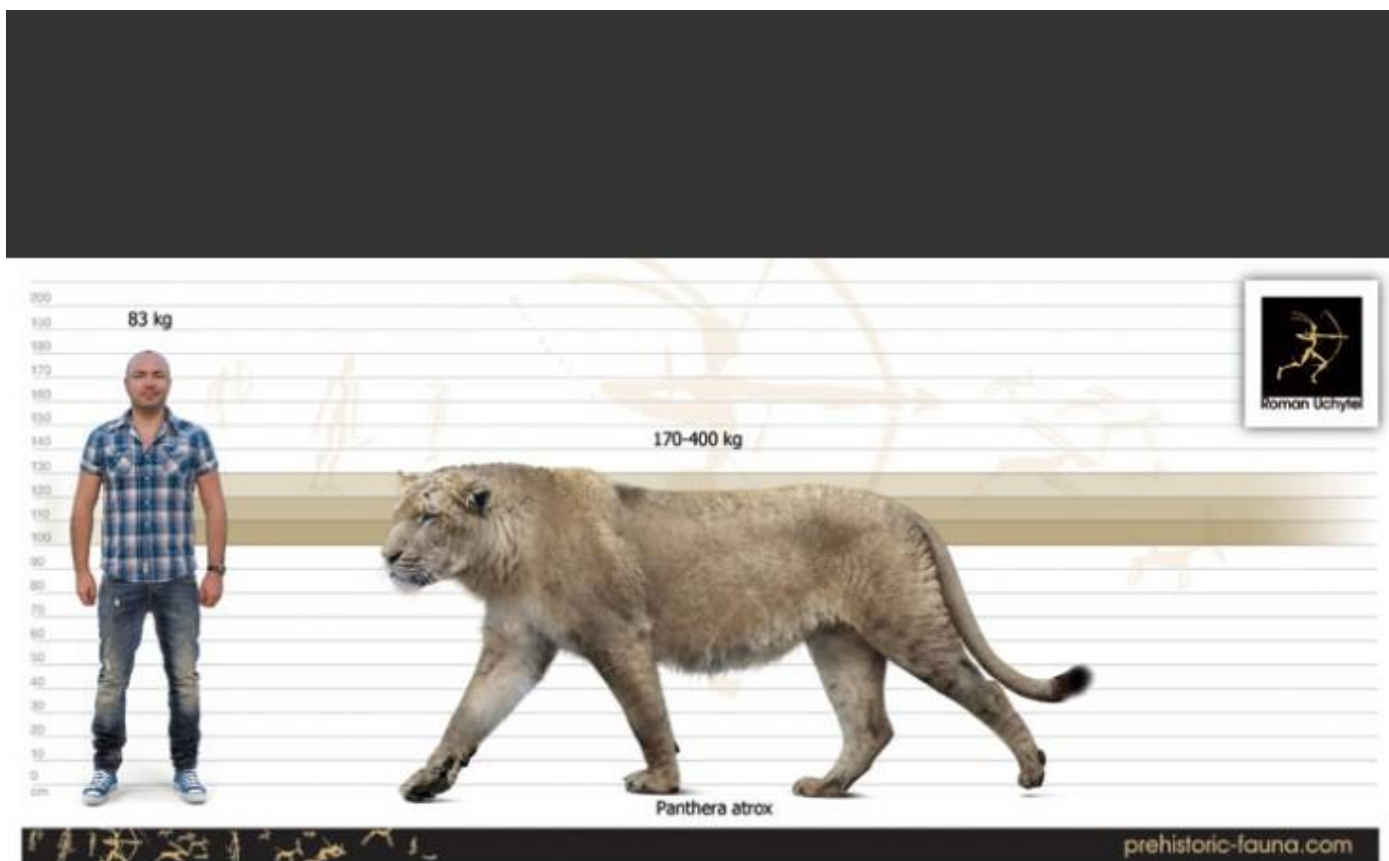




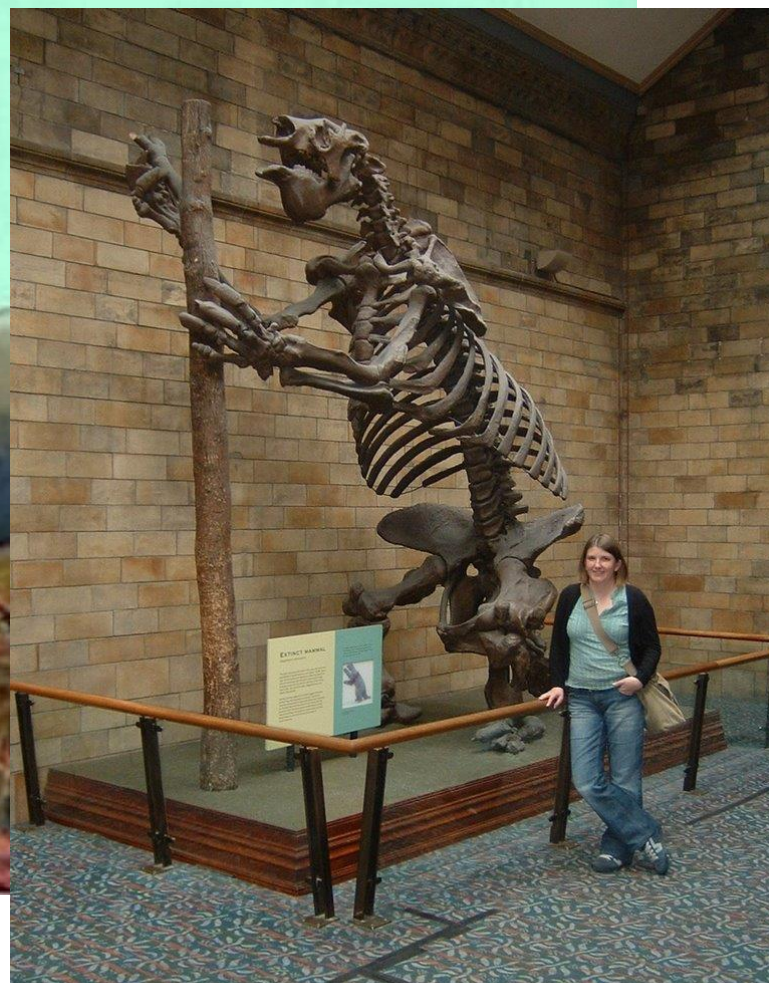
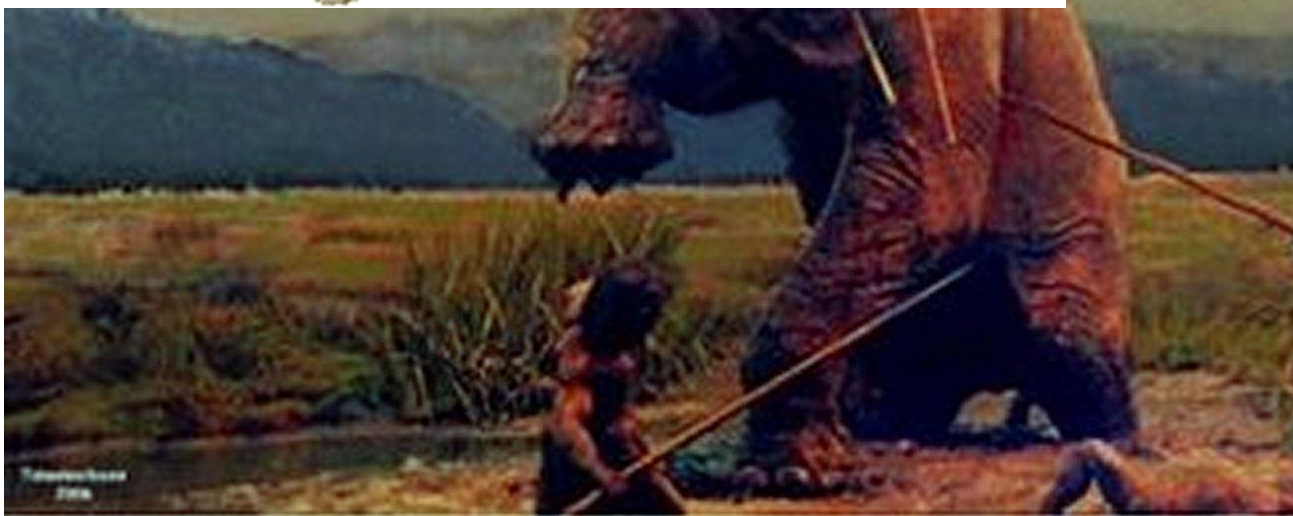
# Atlatl Dart Thrower

















# Quartermaster

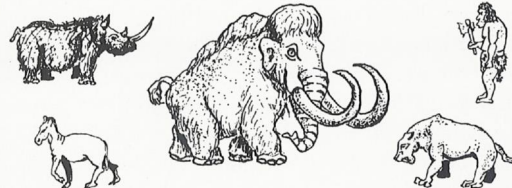
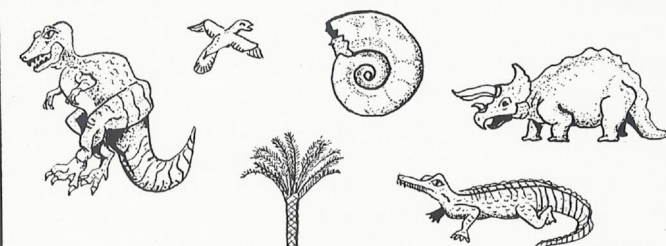










# GEOLOGIC TIME SCALE

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	SILURIAN 20 MILLION YEARS		
	ORDOVICIAN 75 MILLION YEARS		
	CAMBRIAN 100 MILLION YEARS		
	CARBONIFEROUS		
PRECAMBRIAN ERAS			
PROTEROZOIC ERA			
ARCHEOZOIC ERA			
APPROXIMATE AGE OF THE EARTH MORE THAN 4 BILLION 550 MILLION YEARS			













# Tecovas

Unconformity









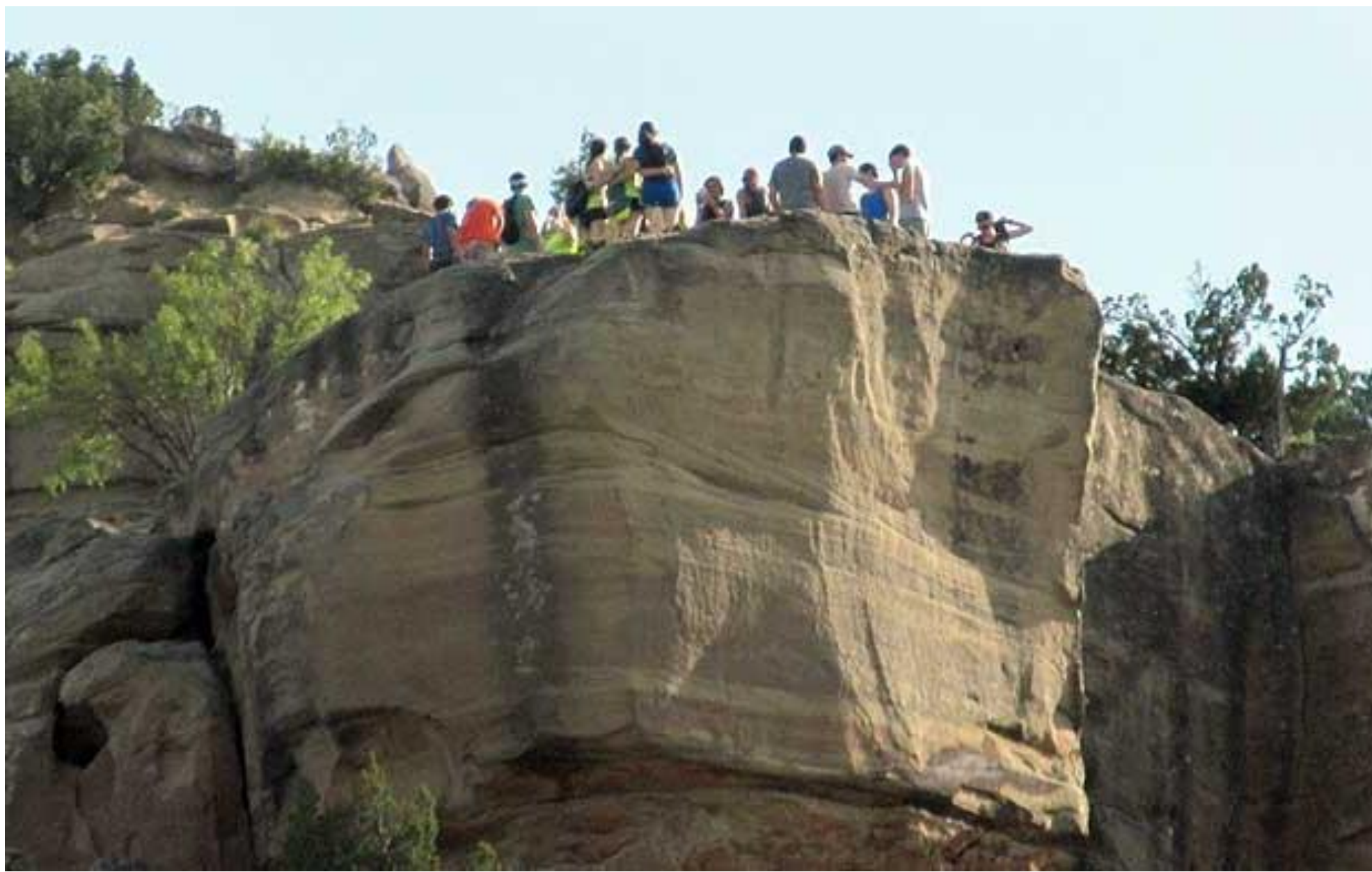




# Trujillo













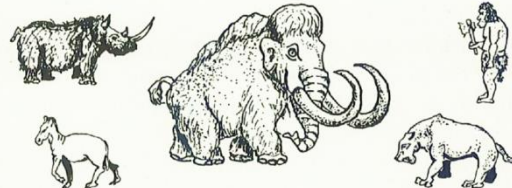
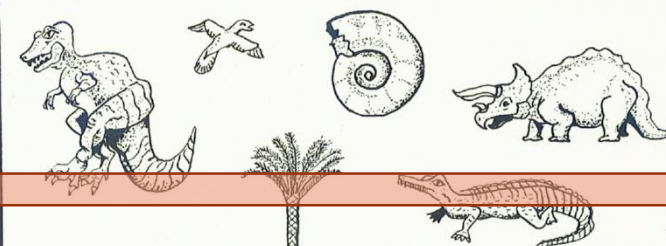








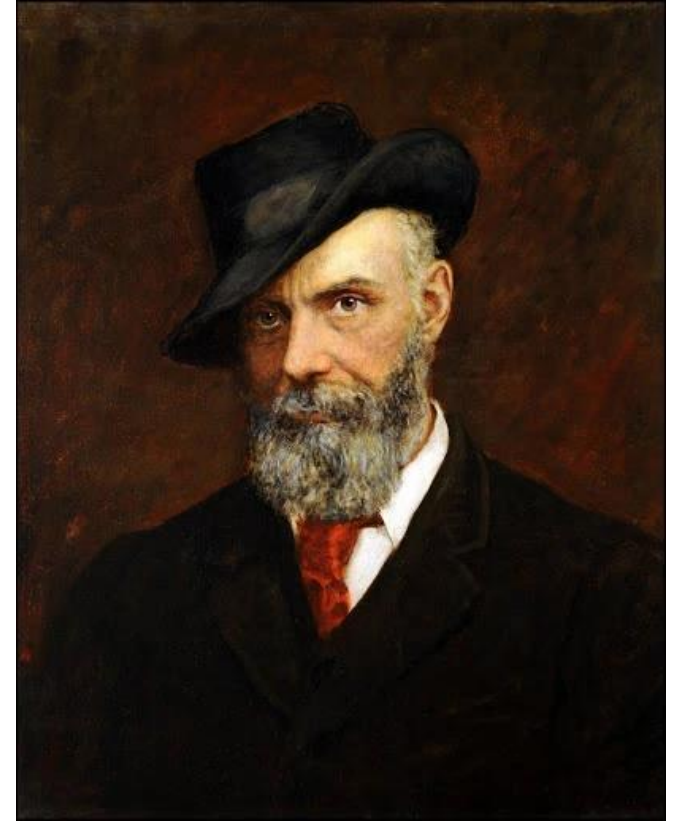


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	ORDOVICIAN 75 MILLION YEARS		
	CAMBRIAN 100 MILLION YEARS		
PRECAMBRIAN ERAS			
PROTEROZOIC ERA			
ARCHEOZOIC ERA			
APPROXIMATE AGE OF THE EARTH MORE THAN 4 BILLION 550 MILLION YEARS			







A













# Ogallala

Unconformity  
~167 million years



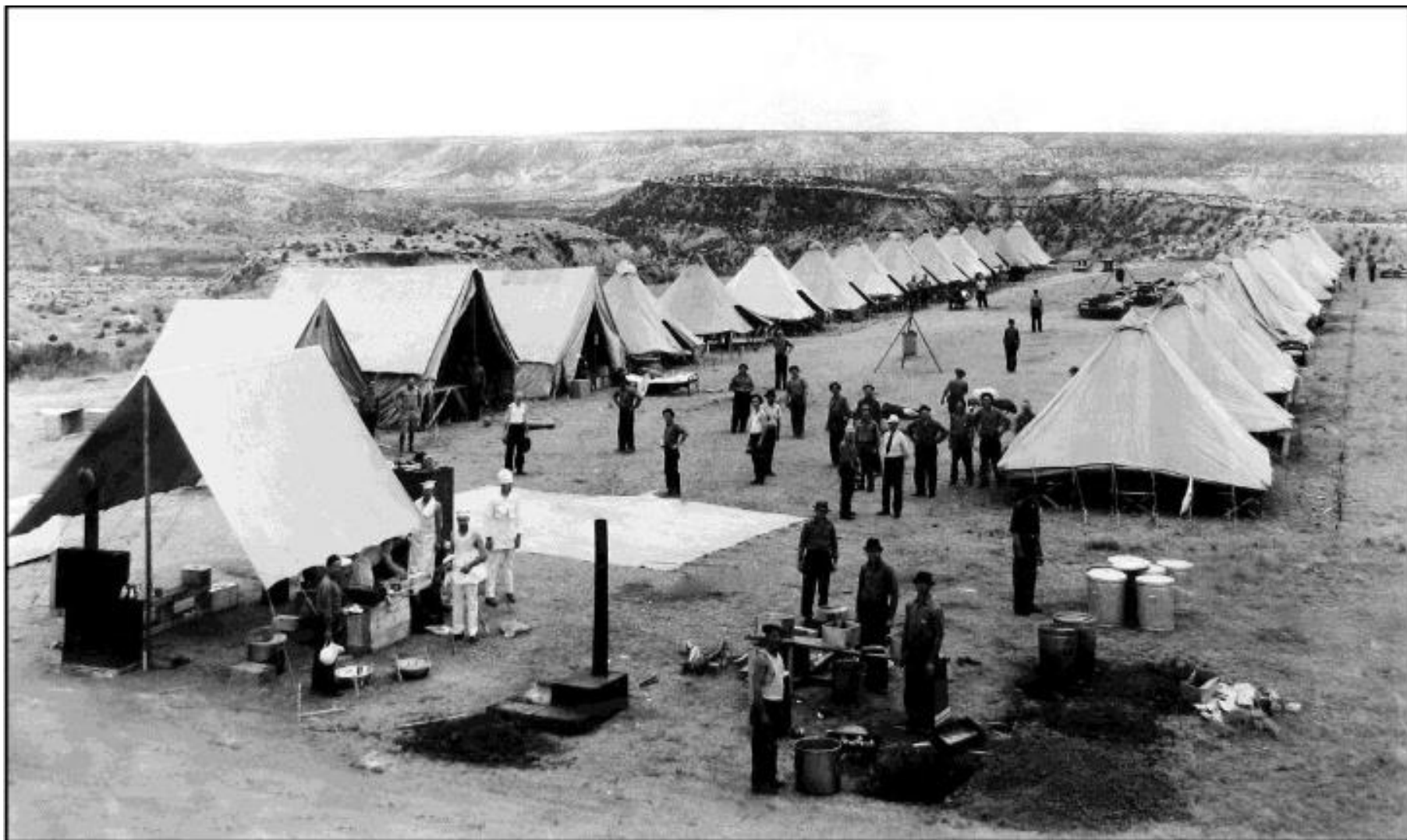






























# Other interesting stuff...



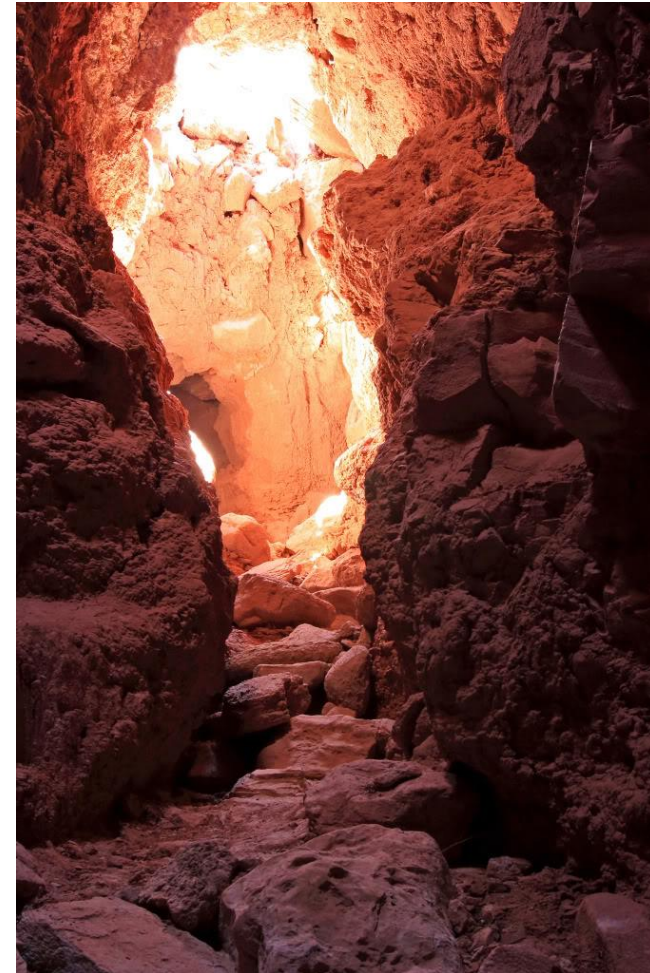


# Other interesting stuff...





# Other interesting stuff...





# Other interesting stuff...



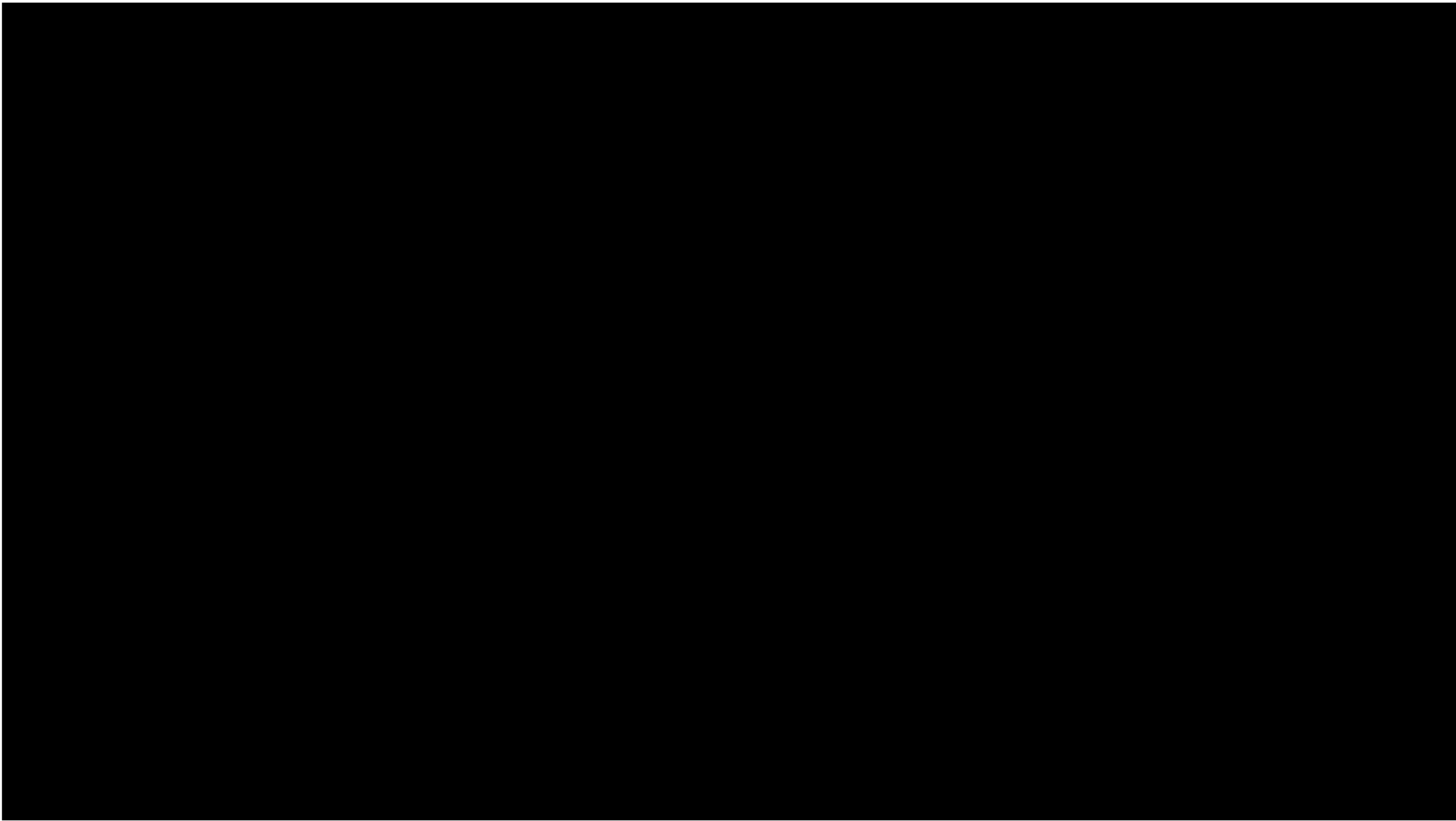




**And then came people...**





























# Canyon Conservation Corps

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